US007278175B2

(12) **United States Patent**
Torres

(10) **Patent No.: US 7,278,175 B2**
(45) **Date of Patent: Oct. 9, 2007**

(54) **TUB SKIRT PANEL SYSTEM**

(75) Inventor: **Ray C. Torres**, Moreno Valley, CA (US)

(73) Assignee: **Lasco Bathware, Inc.**, Anaheim, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 101 days.

(21) Appl. No.: **10/707,876**

(22) Filed: **Jan. 20, 2004**

(65) **Prior Publication Data**

US 2005/0097667 A1 May 12, 2005

Related U.S. Application Data

(60) Provisional application No. 60/481,622, filed on Nov. 11, 2003.

(51) **Int. Cl.**
A47K 3/02 (2006.01)

(52) **U.S. Cl.** **4/584**

(58) **Field of Classification Search** ..... 49/463, 49/465; 52/202.8, 202, 208, 213, 455, 514; 292/84, 87, 107, DIG. 38, DIG. 64, 91; 4/538, 4/548, 549, 584, 592, 593
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

2,841,795	A *	7/1958	Pelicano	4/592
3,028,603	A	4/1962	Rodman	
3,620,404	A *	11/1971	Grasso	220/477
4,290,154	A	9/1981	Benjamin	
D278,360	S	4/1985	Kohler, Jr. et al.	
4,875,726	A *	10/1989	Thau	292/337
D331,622	S	12/1992	Dannenberg	
5,182,821	A	2/1993	Bufford et al.	
5,208,924	A	5/1993	Smith et al.	
5,383,240	A	1/1995	Weeks, Sr.	
5,864,898	A	2/1999	Knapp et al.	
5,940,906	A	8/1999	Halloran	
6,363,546	B1	4/2002	Mateina	
2004/0216225	A1 *	11/2004	Booth et al.	4/541.1

FOREIGN PATENT DOCUMENTS

JP	09056623	A *	4/1997
JP	2000217729	A *	8/2000

OTHER PUBLICATIONS

C-PL Series Specification Sheet.
Karp Handi-Access Door Specification Sheet.

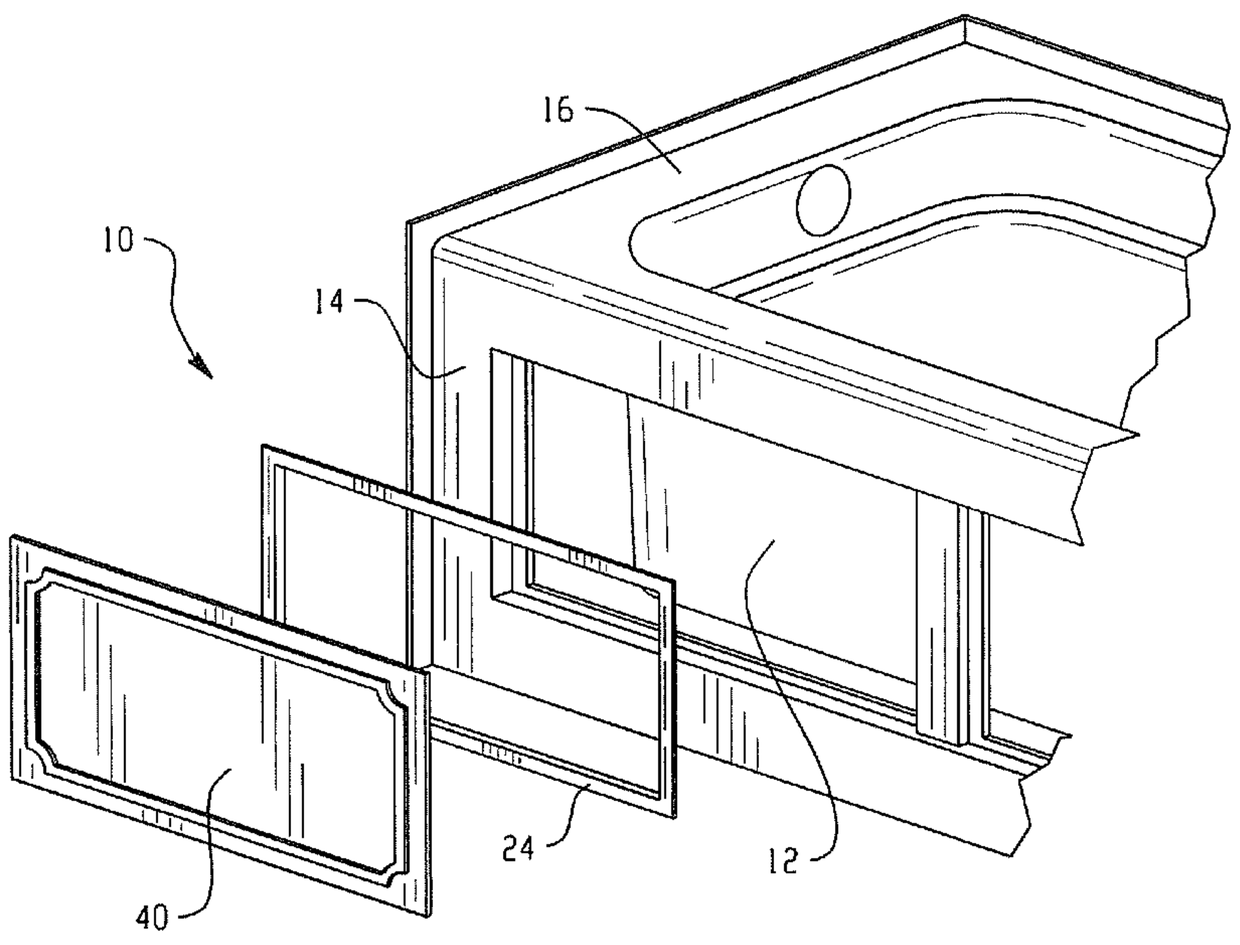
* cited by examiner

Primary Examiner—Huyen Le
(74) *Attorney, Agent, or Firm*—Calfee, Halter & Griswold, LLP

(57) **ABSTRACT**

A system is provided for aesthetically covering access openings in a tub skirt when access to the interior of the skirt is not required. The system includes a bracket affixable to the tub skirt and a panel easily attachable to and detachable from the bracket. The panel, when attached, hides the bracket when viewed from the exterior of the tub skirt. Clips are used to attach the panel to said bracket. The system is an improvement over systems using velcro or brackets which are visible when a panel is in place.

26 Claims, 6 Drawing Sheets



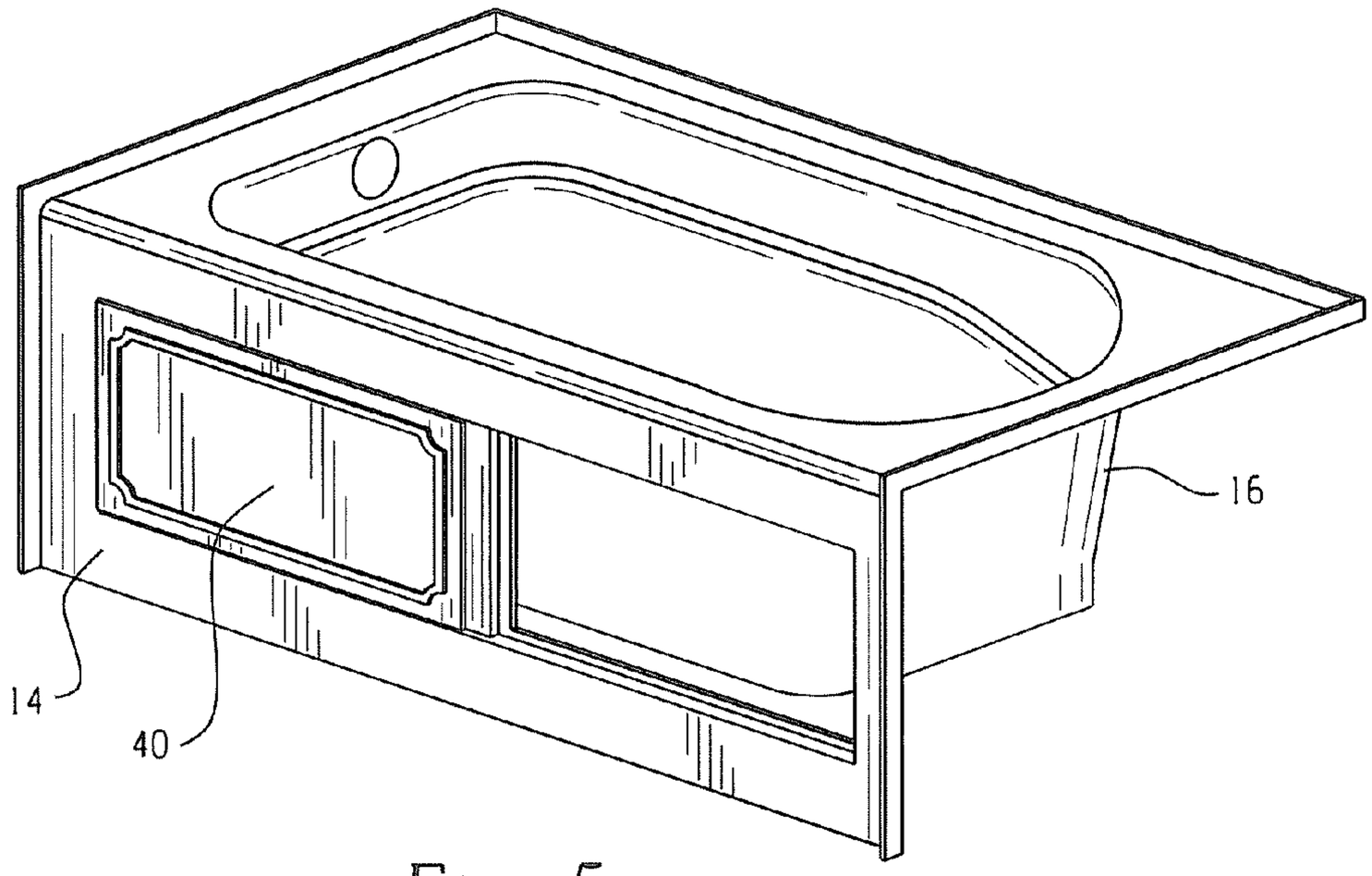


Fig. 5

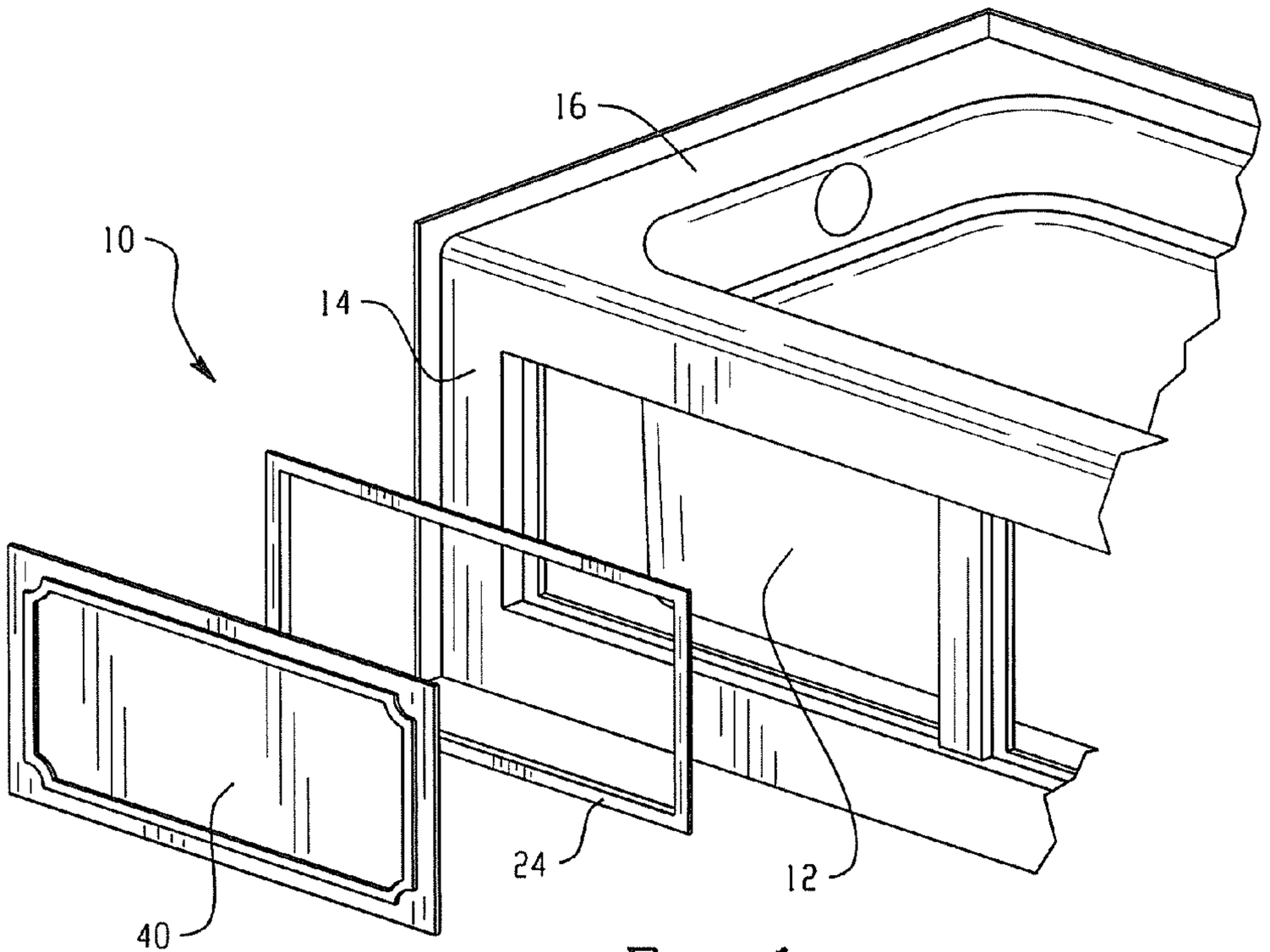


Fig. 1

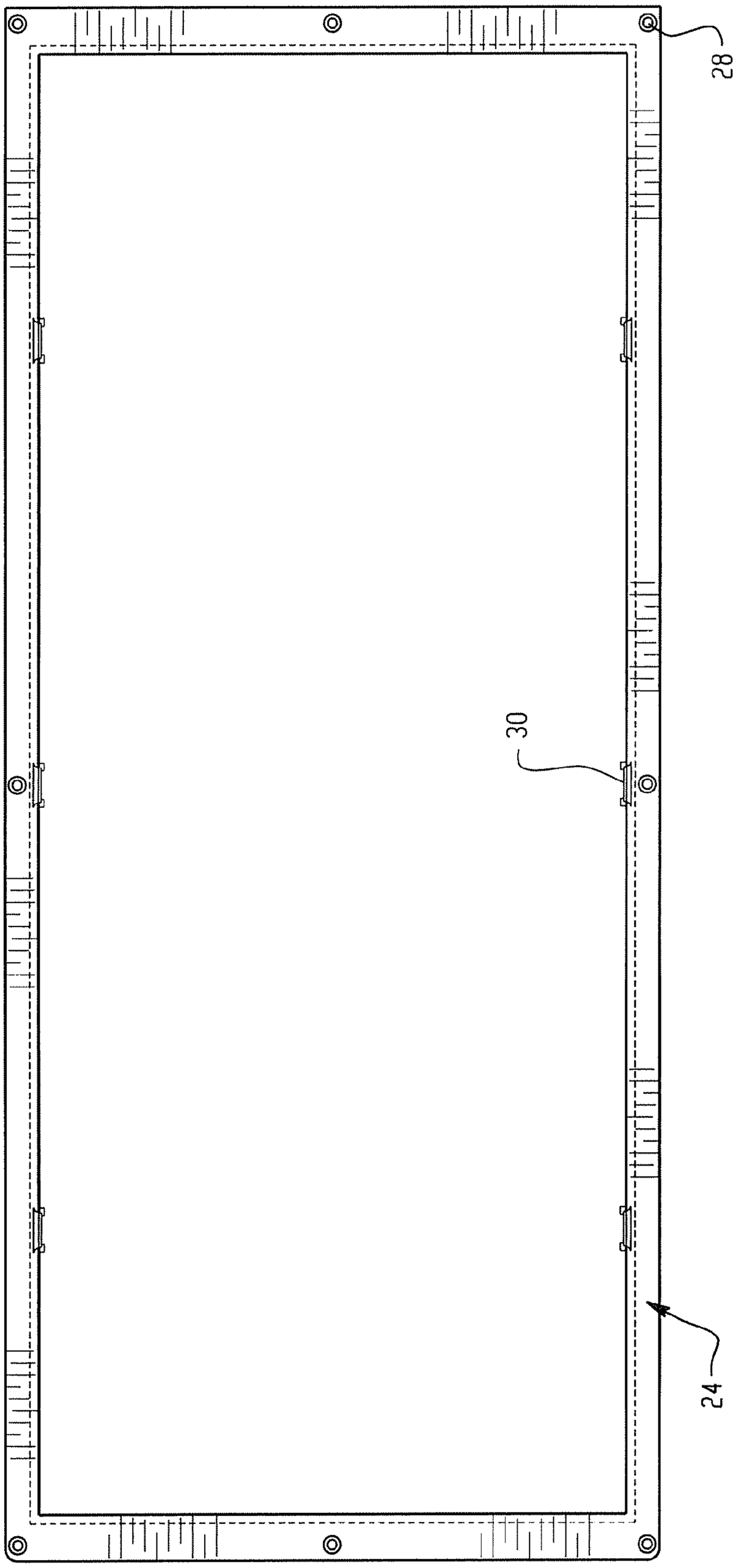


Fig. 2

Fig. 3c

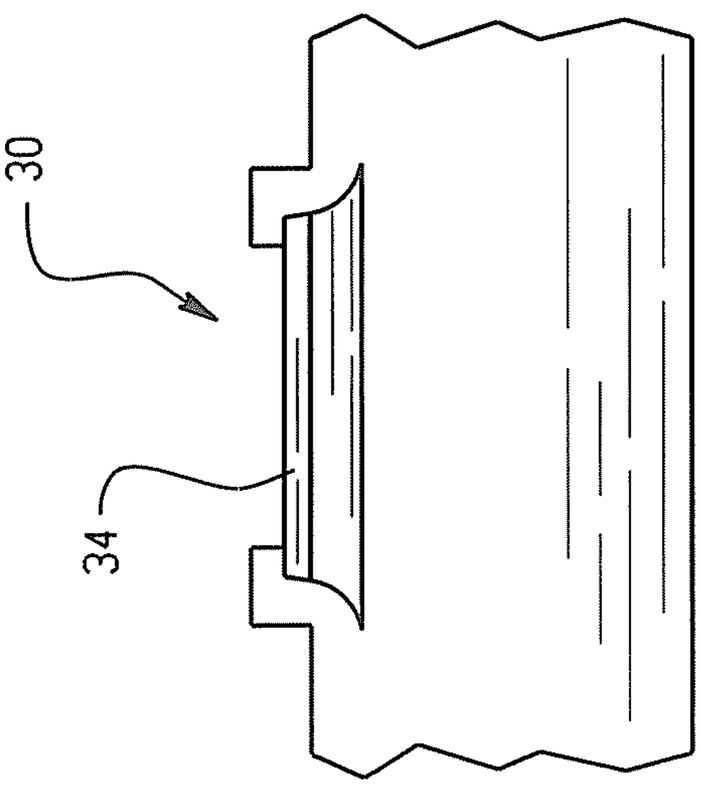


Fig. 3b

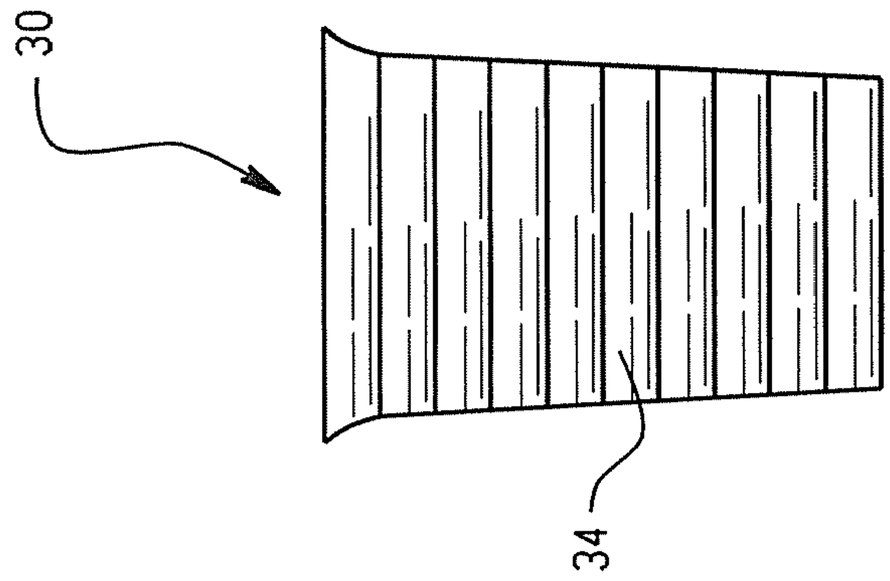


Fig. 3a

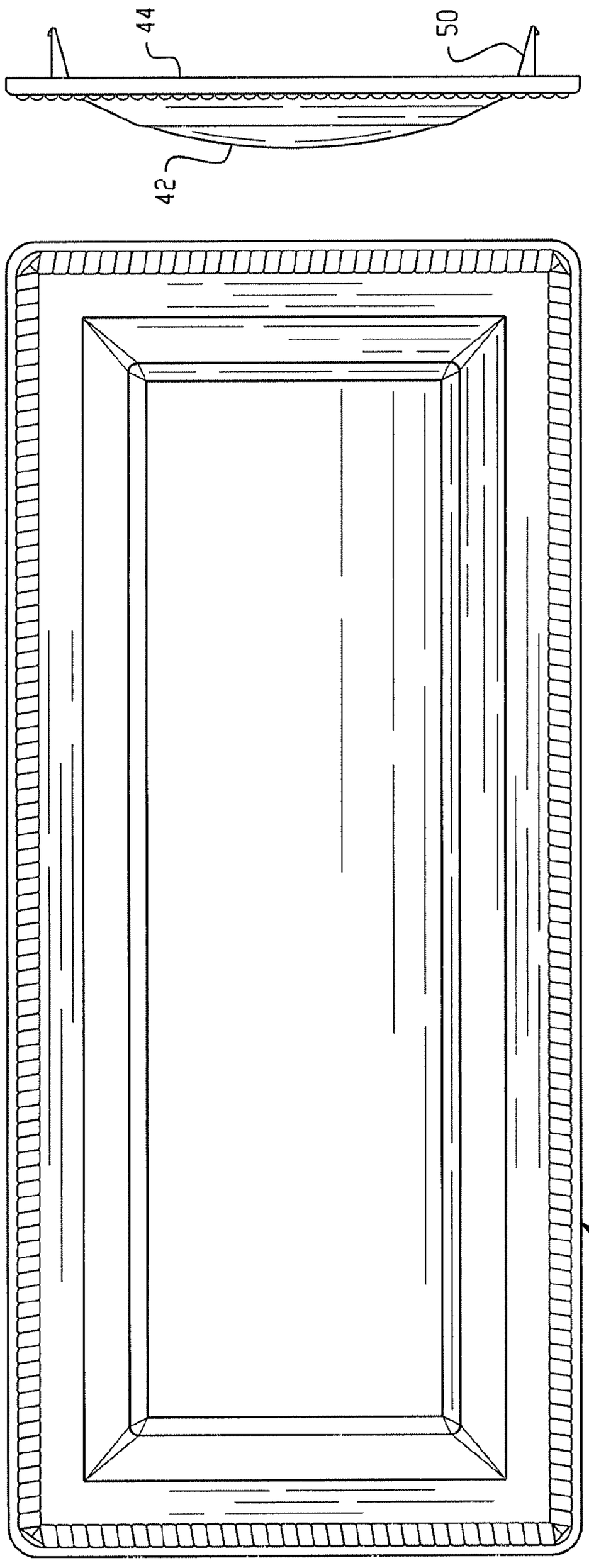


Fig. 4a

Fig. 4b

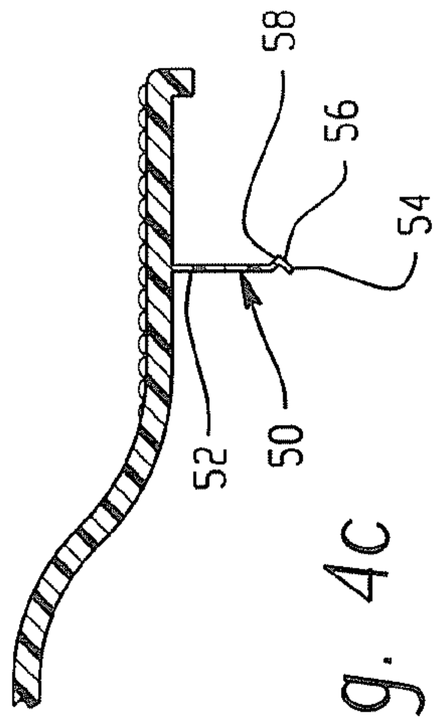


Fig. 4c

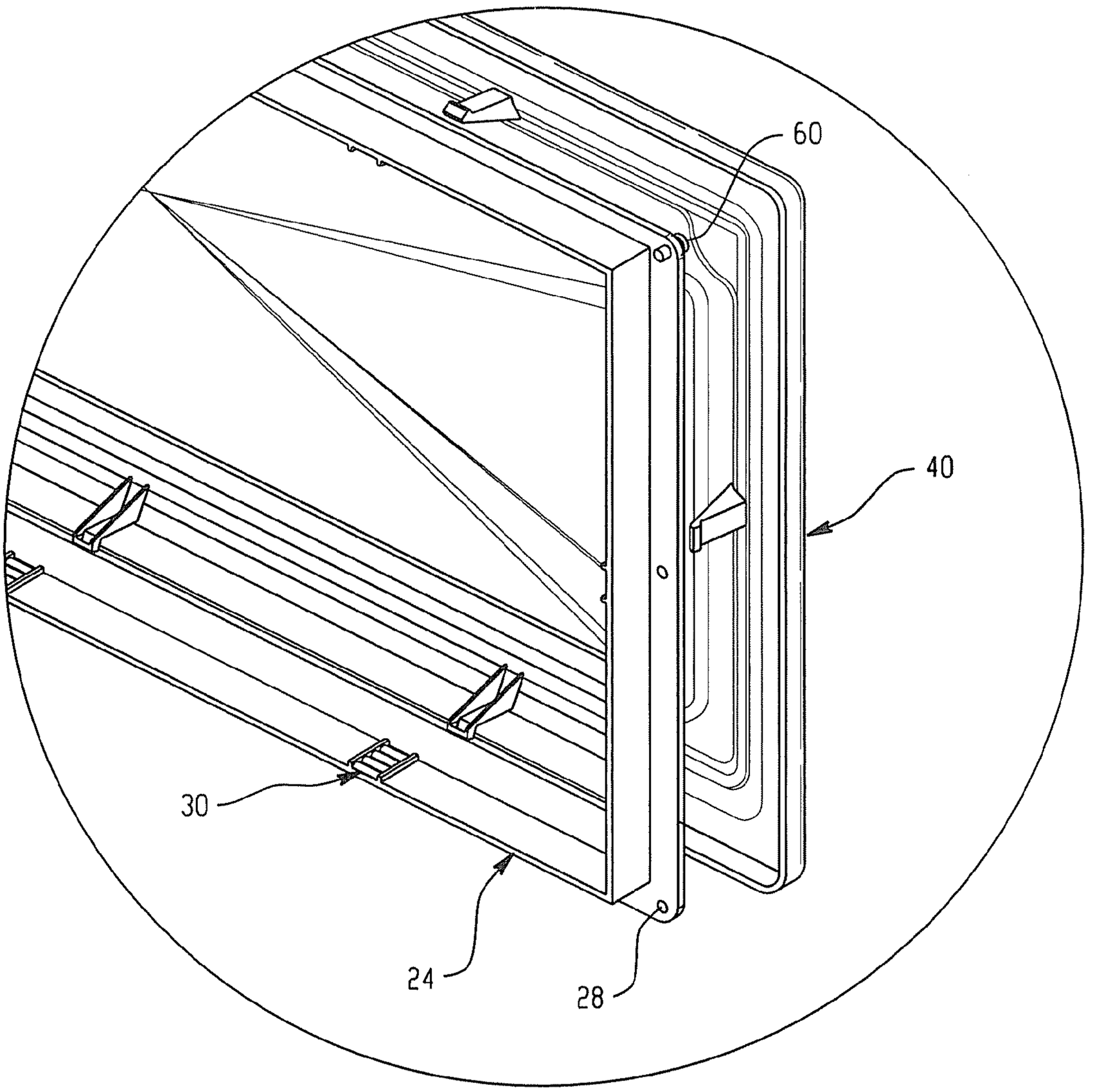


Fig. 6

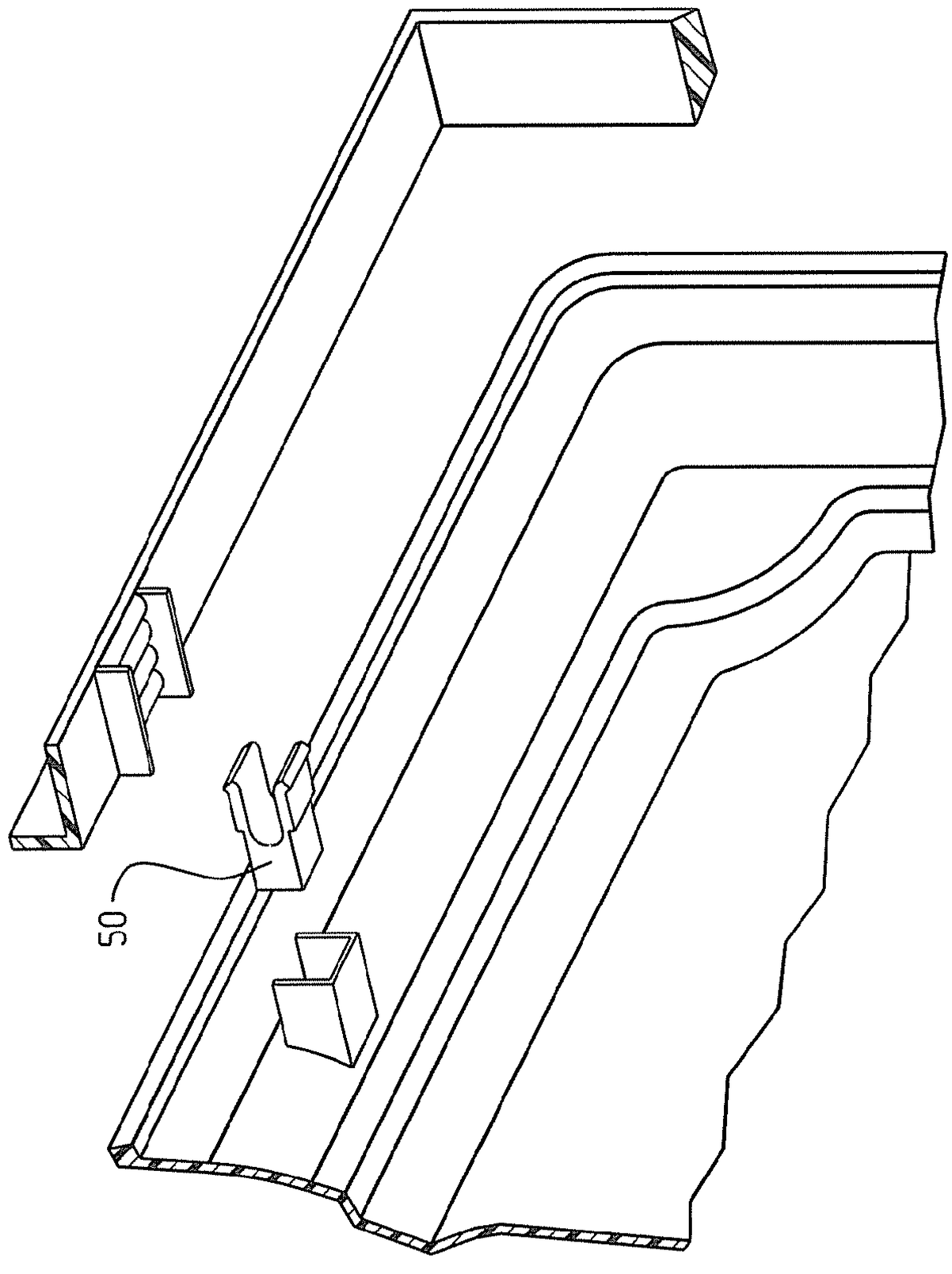


Fig. 7b

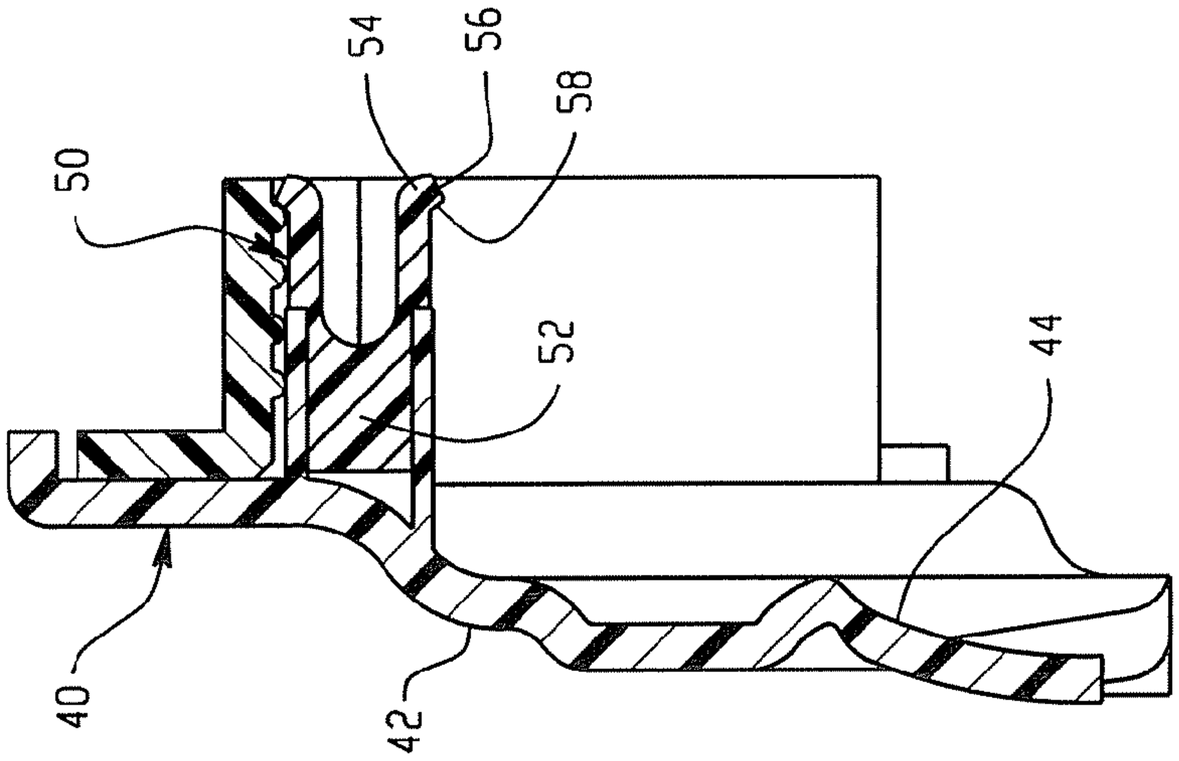


Fig. 7a

TUB SKIRT PANEL SYSTEM

CROSS REFERENCE TO RELATED APPLICATIONS

This application claims the benefit of U.S. provisional patent application No. 60/481,622 filed on Nov. 11, 2003 the entirety of which is hereby incorporated by reference.

BACKGROUND OF INVENTION

Modern bathroom design favors a look with planer surfaces and configurations which minimize the visibility of unattractive space. Nowhere is this more noticeable than in the design of bathtubs and tub accessories. Traditional tubs had a shape matching their name, showing a curved exterior surface and exposed piping. Modern design provides more boxlike shape which hides piping and unattractive space beneath and around the bottom of the tub. A common way to provide this shape as part of a new tub system or often over the top of an older tub is to install a tub skirt. A tub skirt provides a flat, aesthetically pleasing front surface.

A tub skirt, while hiding unattractive space, also prevents access to this space. As a remedy, tub skirts have been provided with access openings. These openings provide access for cleaning or tub repair and to access motors and plumbing on Jacuzzi type tubs. When such activities are not occurring, the openings are covered. Common accessories used to cover these openings are decorative panels. U.S. Pat. No. 5,940,906 to Halloran discloses a skirt frame with a detachable panel. The panel is held in place with Velcro tabs. U.S. Pat. No. 5,804,898 to Kapp et al. discloses a skirt frame with a detachable panel. Velcro is used for attachment. U.S. Pat. No. 5,208,924 to Smith et al. discloses a skirt frame and mechanically attachable panel. These panels are attached by screws with caps.

Skirts are often provided without panels. In other cases, the panels provided with the skirts are not aesthetically pleasing and retrofitting is desired by the consumer. Common ways to attach aftermarket or retrofit panels in order to match new bathroom colors or the like is with velcro pads because they can be attached with an adhesive. However, velcro tends to lose holding force over time and cannot be cleaned easily. This lack of holding force is especially noticeable in Jacuzzi type tubs which include motors which vibrate the tub skirt slightly. Panels which are held in place with screws and caps are difficult to remove. Removal is a time consuming process. What is desired is a simple system which remains hidden from view, but can be used repeatedly without a loss in effectiveness.

SUMMARY OF INVENTION

A system is provided for aesthetically covering access openings in a tub skirt when access to the interior of the skirt is not required. The system includes a bracket affixable to the tub skirt and a panel easily attachable to and detachable from the bracket. The panel, when attached, hides the bracket when viewed from the exterior of the tub skirt. Clips, which may be integrally molded into the panel, are used to attach the panel to the bracket. The system is an improvement over systems using velcro or brackets which are visible when a panel is in place. The system is durable and can be cleaned easily. Additionally, the system does not loosen when the tub skirt is vibrated.

BRIEF DESCRIPTION OF DRAWINGS

FIG. **1** is an exploded view of a system for aesthetically covering an access opening in a tub skirt;

FIG. **2** is a front elevation view of a bracket within the system of FIG. **1**;

FIG. **3***a* is a bottom view of a section of the bracket of FIG. **2**;

FIG. **3***b* is a side view of a section of the bracket of FIG. **2**;

FIG. **3***c* is a cutaway view of a section of the bracket of FIG. **2**;

FIG. **4***a* is a front view of a panel of the system of FIG. **1**;

FIG. **4***b* is a side view of the panel of the system of FIG. **1**;

FIG. **4***c* is a cutaway view of a section of the panel of the system of FIG. **1**;

FIG. **5** is a perspective view of the system of FIG. **1**;

FIG. **6** is a perspective view of a section of an alternate system for aesthetically covering an access opening in a tub skirt;

FIG. **7***a* is a cut away view of a clip within a system for aesthetically covering an access opening in a tub skirt; and

FIG. **7***b* is a perspective view of the clip of FIG. **7***a* in a system for aesthetically covering an access opening in a tub skirt.

DETAILED DESCRIPTION

As described in more detail below and shown in FIGS. **1** and **5**, a system **10** for aesthetically covering access openings **12** in a tub skirt **14** is provided which includes a bracket **24** affixable to the tub skirt **14** and a panel **40** easily attachable to and detachable from the bracket **24**. The panel **40** may be provided with aesthetic surface decoration upon its face. When in place and viewed from the exterior of the tub skirt **14**, the bracket **24** is hidden from view by the panel **40**.

The system **10** may be a part of or affixed to a tub skirt **14**. The skirt **14** may be of a type known in the art, typically having a planer front face which defines one or more access openings **12**. The skirt **14** may be used with any type of tub, but in a preferred embodiment of the invention the skirt **14** is used with a bath tub **16**. Alternatively the system may be used with cabinets and access passages on walls to access plumbing for example. In yet another embodiment, the system does not cover an opening, but is placed upon a solid surface to match another system which is covering an opening. When used with a tub, the tub skirt **14** may be integrally formed with a bath tub **16** or may be provided separately. If separately provided, the skirt **14** is easily affixed over the top of the tub **16**. The tub skirt **14** functions to provide a simple surface which is easy to clean and hides unattractive space around and beneath the tub **16**. This space often has little use and may be distracting to the eye. In other cases, this space holds plumbing or motors which require periodic access. In a preferred embodiment of the invention, the tub skirt **14** has a length which is equivalent to length of the tub **16**. However any size tub skirt **14** may be used in order to mesh with the architecture of the room in which the tub **16** is placed. In a preferred embodiment the tub skirt **14** extends from a single side of the tub **16** and hides that face of the tub from view. However, depending upon the way to tub **16** is positioned in a room, the skirt **14** may extend to hide any or all of the remaining three faces of the tub **16** as required by the architecture of the room.

Referring to FIGS. **1** and **2** a bracket **24** is shown having a rectangular shape. The bracket **24** may be any shape and may be provided in any number of pieces. Typical shapes include rectangular, square and a simulated tile shape. The shape of the bracket **24** is typically determined by the shape of the access opening **12** defined by the tub skirt **14**. The bracket **24** includes four sides having a rectangular cross section, although any cross sectional shape may be used. The bracket **24** may be formed from plastic in a molding process, typically injection molding. The bracket **24** functions as a support for the panel **40** which covers the access opening **12** in the skirt **14**. Preferably the bracket **24** may be affixed to the tub skirt **14** using rivets, but may also be affixed using glue or screws. The bracket **24** defines a plurality of apertures **28** for use in attaching the bracket **24** to the tub skirt **14**. FIG. **6** shows a typical rivet **60** and apertures **28** within the bracket **24** to allow passage of the rivet **60**. The bracket **24** may also be attached using glue or two-sided tape. The bracket **24** provides a support for the panel **40**. Referring back to FIG. **1**, the panel **40** may be easily attached and detached from the bracket **24**. The bracket **24** is sized in accordance with the access opening **12** being covered by the panel **40**. In a preferred embodiment of the invention the bracket **24** is affixed around the perimeter of the access opening **12**. The bracket **24** may be affixed to the front face of the tub skirt **14**, but is hidden from view when the panel **40** is in place.

The bracket **24** also defines a plurality of fastener mating surfaces **30** as shown in FIGS. **2**, **3***a* through **3***c* and **6**. Any number of fastener mating surfaces **30** may be placed on any edge of the bracket **24**. FIG. **2** shows mating surfaces **20** on two sides of the bracket **24** while FIG. **6** shows mating surfaces **30** of four sides. A fastener mating surface **30** may have the shape of a tapered channel **34** as shown in FIG. **3***a*. The channel **34** may taper from a wider end at the front of the bracket **24** to a narrower end at the rear of the bracket **24**. Thus, as the panel **40** is applied to the bracket **24** the mating surface **30** is easily located at its wide end. As the panel **40** is pushed into a locked position, a clip **50** upon the panel **40** progresses along the channel **34** to the narrower end. The panel **40** becomes aligned as the clip **50** reaches the narrow end. The mating surfaces **30** may be provided in a non-tapered version as well as shown in FIG. **6**. The mating surface **30** includes a plurality of raised ridges **32**. The raised ridges **32** function to engage clips **50** which are on the panel **40**, thus holding the panel **40** in place. The raised ridges **32** preferably are molded as part of the bracket **24** upon its formation. The raised ridges **32** are oriented transversely to the direction of insertion of the panel **40** and its clips **50**. As described in more detail below, the raised ridges **32** interact with the clips **50** to hold the panel **40** in place.

Referring to FIGS. **1**, **4***a*-**4***c* and **7***a*-**7***b* a panel **40** is provided which includes a face **42**, back **44** and a plurality of clips **50**. The face **42** preferably has a shape which is similar to the shape of the access opening **12** in the tub skirt **14**, but is sized to cover the opening **12** when in place. The panel **40** may be formed from acrylonitrile-butadiene-styrene (ABS) or AES polymer: The face **42** of the panel **40** may be contoured for decorative purposes. The face **42** may also include raised portions. Extending from the back surface **44** are a plurality of clips **50**. The clips **50** include a straight portion **52** which begins at the junction with the panel and extends to an end with an angled portion **54**. The angled portion **54** may be any shape which defines a leading interactive surface **56** and trailing interactive surface **58** which mates with the mating surfaces **30** on the bracket **24**. The leading interactive surface **56** and trailing interactive surface **58** may be pitched at equal angles but opposite directions with respect to the straight portion **52** to form a V-shape. The clips **50** may be molded integrally with the remainder of the panel **40** or attached in a separate process as shown in FIGS. **7***a* and **7***b*. The clips **50** are flexible, but resilient. The clips **50** interact with the mating surfaces **30** upon the bracket **24**. The panel **40** may include a number of clips **50** which corresponds with the number and placement of mating surfaces **30** on the bracket **24**. As the panel **40** is pushed into place the leading interactive surface **56** of the angled portion **54** of the clip **50** will engage the front side of a first raised ridge **32** upon the bracket. As the panel **40** is pushed further towards the bracket **24**, the clip **50** flexes and travels over the raised ridge **32** to the ridge's back side. The panel **40** is now prevented from retraction by the trailing interactive surface **58** if released. As the panel **40** is pushed farther inwards, the clip **50** rides over each successive raised ridge until a desired position is reached. The panel **40** may also be removed easily. The panel **40** is pulled and the trailing interactive surface **58** of the clip **50** rides over successive raised ridges **32** as the resilient clip **50** deflects and returns to position. Thus, the clips **50** and the raised ridges **32** cooperate to permit bi-directional movement of the panel **40** relative to the bracket **24** or the tub skirt **14**, to which the bracket may attach.

Although the invention has been shown and described with reference to certain preferred and alternate embodiments, the invention is not limited to these specific embodiments. Minor variations and insubstantial differences in the various combinations of materials and methods of application may occur to those of ordinary skill in the art while remaining within the scope of the invention as claimed and equivalents. Use of the term "or" herein is the inclusive, and not the exclusive use.

The invention claimed is:

1. A system for aesthetically covering access openings in a tub skirt when interior skirt access is not required comprising:

a bracket affixable to the tub skirt, the bracket comprising a plurality of fastener mating surfaces, each fastener mating surface comprising a plurality of raised ridges;

a panel easily attachable to and detachable from said bracket, said panel, when attached, hiding said bracket when viewed from the exterior of the tub skirt; and

clips used to attach said panel to said bracket via engagement with at least one raised ridge of a corresponding fastener mating surface, wherein each raised ridge corresponds to a different position of the panel relative to the bracket;

and wherein the clips and the raised ridges cooperate to permit bi-directional movement of the panel relative to the bracket.

2. The system of claim **1** wherein said bracket extends around the perimeter of a portion of the tub skirt defining an access opening.

3. The system of claim **1** wherein said tub skirt is a skirt for a bath tub.

4. The system of claim **1** wherein said clips are integrally formed with and extend from the back of said panel.

5. The system of claim **4** wherein said clips include a straight portion and an angled portion.

6. The system of claim **5** wherein said angled portion of said clip includes a leading edge and a trailing edge together defining a V-shape.

7. The system of claim **1** wherein said mating surfaces are tapered from the front of said bracket to the back of said bracket.

8. The system of claim **1** wherein said bracket is a rectangular frame.

9. The system of claim **8** wherein said rectangular frame includes at least one fastener mating surface on at least two of its four sides.

10. The system of claim **9** wherein said rectangular frame includes at least one fastener mating surface on each of its four sides.

11. The system of claim **1** wherein said clips are detachable from said panel.

12. The system of claim **1**, wherein the tub skirt is integrally formed with a tub.

13. The system of claim **1**, wherein the tub skirt is separate from a tub and affixable over the top of the tub.

14. The system of claim **1**, wherein the shape of the bracket is selected to be affixable around a periphery of the access opening.

15. The system of claim **1**, wherein the bracket is affixed to the tub skirt with an adhesive.

16. The system of claim **1**, wherein the panel is spaced apart from the bracket when attached.

17. The system of claim **1** wherein the different positions define different distances between the panel and the bracket.

18. A tub skirt comprising:

a face portion defining one or more access openings;

a bracket affixable to said skirt face portion;

a panel easily attachable to and detachable from said bracket, said panel, when attached, hiding said bracket when viewed from the exterior of the tub skirt; and

at least two clips used to attach said panel to said bracket via engagement with corresponding mating surfaces comprising a plurality of raised ridges; wherein each one of said plurality of raised ridges corresponds to a different position of the panel relative to the bracket.

19. The tub skirt of claim **18**, wherein the shape of the bracket is selected to be affixable around a periphery of the access opening.

20. The tub skirt of claim **18** wherein the different positions define different distances between the panel and the bracket.

21. A system for covering an access opening in a tub skirt, comprising a bracket capable of being affixed about a perimeter of the access opening and a panel attachable to and detachable from the bracket, wherein the panel is attachable to the bracket in a selected one of a plurality of positions, each position defining a different distance between the panel and the bracket, and wherein the panel is bi-directionally movable toward and away from the bracket.

22. The system of claim **21**, wherein the panel comprises a plurality of clips designed to engage the bracket at a selected one of a plurality of positions.

23. The system of claim **22**, wherein each clip comprises an angled leading edge and an angled trailing edge.

24. The system of claim **22**, wherein the bracket comprises a plurality of raised ridges designed to engage the clip, each raised ridge capable of engaging the clip in a different selected position.

25. The system of claim **21** wherein the panel includes a plurality of sides, and each side includes at least one of the plurality of clips.

26. The system of claim **21** wherein said panel, when attached, hides said bracket when viewed from the exterior of the tub skirt.

* * * * *